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Wellman et al.

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(54) **ITERATIVE KALMAN FILTERING**

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(57) **ABSTRACT**

Several types of noise limit the performance of remote sensing systems, e.g., systems that determine the location, color, or shape of remote objects. When noise detected by sensors of the remote sensing systems is known and well estimated, a Kalman filter can converge on an accurate value without noise. However, non-Gaussian noise bursts can cause the Kalman filter to diverge from an accurate value. Current approaches arbitrarily boost noise with fixed additive or multiplicative factors, which slows filter response and often fails to give timely results. Such noise boosts prevent divergence due to badly corrupted measurements. Disclosed embodiments eliminate a subset of noise measurements having the largest errors from a data set of noise measurements and process the remaining data through the Kalman filter. Advantageously, disclosed embodiments enable a Kalman filter to converge on an accurate value without the introduction of noise boost estimates.

9 Claims, 7 Drawing Sheets